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P#19

RAW SEQUENCE LISTING

DATE: 11/06/2002

PATENT APPLICATION: US/09/445,289C

TIME: 14:44:48

Input Set : A:\seqlistcorrected3.txt

Output Set: N:\CRF4\11062002\I445289C.raw

SEQUENCE LISTING

3 (1) GENERAL INFORMATION:

- 5 (i) APPLICANT: Mukamolova, Galina V. et al.
- 7 (ii) TITLE OF INVENTION: Bacterial Pheromones and Uses Therefor
- 9 (iii) NUMBER OF SEQUENCES: 59
- 11 (iv) CORRESPONDENCE ADDRESS:
 - 12 (A) ADDRESSEE: LAHIVE & COCKFIELD, LLP
 - 13 (B) STREET: 28 State Street
 - 14 (C) CITY: Boston
 - 15 (D) STATE: Massachusetts
 - 16 (E) COUNTRY: USA
 - 17 (F) ZIP: 02109-1875

19 (v) COMPUTER READABLE FORM:

- 20 (A) MEDIUM TYPE: Floppy disk
- 21 (B) COMPUTER: IBM PC compatible
- 22 (C) OPERATING SYSTEM: PC-DOS/MS-DOS
- 23 (D) SOFTWARE: PatentIn Release #1.0, Version #1.25

25 (vi) CURRENT APPLICATION DATA:

- C--> 26 (A) APPLICATION NUMBER: US/09/445,289C
- C--> 27 (B) FILING DATE: 11-May-2000

C--> 37 (vii) PRIOR APPLICATION DATA:

- 30 (A) APPLICATION NUMBER: PCT/GB98/01619
- 31 (B) FILING DATE: 03-JUNE-1998
- 34 (A) APPLICATION NUMBER: GB 9711389.8
- 35 (B) FILING DATE: 04-JUN-1997
- 38 (A) APPLICATION NUMBER: GB 9811221.2
- 39 (B) FILING DATE: 27-MAY-1998

41 (viii) ATTORNEY/AGENT INFORMATION:

- 42 (A) NAME: Lauro, Peter C.
- 43 (B) REGISTRATION NUMBER: 32,360
- 44 (C) REFERENCE/DOCKET NUMBER: FHW-051US

46 (ix) TELECOMMUNICATION INFORMATION:

- 47 (A) TELEPHONE: (617) 227-7400
- 48 (B) TELEFAX: (617) 742-4214

50 (2) INFORMATION FOR SEQ ID NO: 1:

52 (i) SEQUENCE CHARACTERISTICS:

- 53 (A) LENGTH: 362 amino acids
- 54 (B) TYPE: amino acid
- 55 (D) TOPOLOGY: linear

59 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 1:

61 Met Leu Arg Leu Val Val Gly Ala Leu Leu Leu Val Leu Ala Phe Ala
 62 1 5 10 15
 64 Gly Gly Tyr Ala Val Ala Ala Cys Lys Thr Val Thr Leu Thr Val Asp

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```

65          20          25          30
67 Gly Thr Ala Met Arg Val Thr Thr Met Lys Ser Arg Val Ile Asp Ile
68          35          40          45
70 Val Glu Glu Asn Gly Phe Ser Val Asp Asp Arg Asp Asp Leu Tyr Pro
71          50          55          60
73 Ala Ala Gly Val Gln Val His Asp Ala Asp Thr Ile Val Leu Arg Arg
74          65          70          75          80
76 Ser Arg Pro Leu Gln Ile Ser Leu Asp Gly His Asp Ala Lys Gln Val
77          85          90          95
79 Trp Thr Thr Ala Ser Thr Val Asp Glu Ala Leu Ala Gln Leu Ala Met
80          100          105          110
82 Thr Asp Thr Ala Pro Ala Ala Ala Ser Arg Ala Ser Arg Val Pro Leu
83          115          120          125
85 Ser Gly Met Ala Leu Pro Val Val Ser Ala Lys Thr Val Gln Leu Asn
86          130          135          140
88 Asp Gly Gly Leu Val Arg Thr Val His Leu Pro Ala Pro Asn Val Ala
89          145          150          155          160
91 Gly Leu Leu Ser Ala Ala Gly Val Pro Leu Leu Gln Ser Asp His Val
92          165          170          175
94 Val Pro Ala Ala Thr Ala Pro Ile Val Glu Gly Met Gln Ile Gln Val
95          180          185          190
97 Thr Arg Asn Arg Ile Lys Lys Val Thr Glu Arg Leu Pro Leu Pro Pro
98          195          200          205
100 Asn Ala Arg Arg Val Glu Asp Pro Glu Met Asn Met Ser Arg Glu Val
101          210          215          220
103 Val Glu Asp Pro Gly Val Pro Gly Thr Gln Asp Val Thr Phe Ala Val
104          225          230          235          240
106 Ala Glu Val Asn Gly Val Glu Thr Gly Arg Leu Pro Val Ala Asn Val
107          245          250          255
109 Val Val Thr Pro Ala His Glu Ala Val Val Arg Val Gly Thr Lys Pro
110          260          265          270
112 Gly Thr Glu Val Pro Pro Val Ile Asp Gly Ser Ile Trp Asp Ala Ile
113          275          280          285
115 Ala Gly Cys Glu Ala Gly Gly Asn Trp Ala Ile Asn Thr Gly Asn Gly
116          290          295          300
118 Tyr Tyr Gly Gly Val Gln Phe Asp Gln Gly Thr Trp Glu Ala Asn Gly
119          305          310          315          320
121 Gly Leu Arg Tyr Ala Pro Arg Ala Asp Leu Ala Thr Arg Glu Glu Gln
122          325          330          335
124 Ile Ala Val Ala Glu Val Thr Arg Leu Arg Gln Gly Trp Gly Ala Trp
125          340          345          350
127 Pro Val Cys Ala Ala Arg Ala Gly Ala Arg
128          355          360

```

130 (2) INFORMATION FOR SEQ ID NO: 2:

132 (i) SEQUENCE CHARACTERISTICS:

133 (A) LENGTH: 188 amino acids

134 (B) TYPE: amino acid

135 (D) TOPOLOGY: linear

139 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 2:

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Input Set : A:\seqlistcorrected3.txt

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```

141 Met Pro Val Gly Trp Leu Trp Arg Ala Arg Thr Ala Lys Gly Thr Thr
142 1 5 10 15
144 Leu Lys Asn Ala Arg Thr Thr Leu Ile Ala Ala Ala Ile Ala Gly Thr
145 20 25 30
147 Leu Val Thr Thr Ser Pro Ala Gly Ile Ala Asn Ala Asp Asp Ala Gly
148 35 40 45
150 Leu Asp Pro Asn Ala Ala Ala Gly Pro Asp Ala Val Gly Phe Asp Pro
151 50 55 60
153 Asn Leu Pro Pro Ala Pro Asp Ala Ala Pro Val Asp Thr Pro Pro Ala
154 65 70 75 80
156 Pro Glu Asp Ala Gly Phe Asp Pro Asn Leu Pro Pro Pro Leu Ala Pro
157 85 90 95
159 Asp Phe Leu Ser Pro Pro Ala Glu Glu Ala Pro Pro Val Pro Val Ala
160 100 105 110
162 Tyr Ser Val Asn Trp Asp Ala Ile Ala Gln Cys Glu Ser Gly Gly Asn
163 115 120 125
165 Trp Ser Ile Asn Thr Gly Asn Gly Tyr Tyr Gly Gly Leu Arg Phe Thr
166 130 135 140
168 Ala Gly Thr Trp Arg Ala Asn Gly Gly Ser Gly Ser Ala Ala Asn Ala
169 145 150 155 160
171 Ser Arg Glu Glu Gln Ile Arg Val Ala Glu Asn Val Leu Arg Ser Gln
172 165 170 175
174 Gly Ile Arg Ala Trp Pro Val Cys Gly Arg Arg Gly
175 180 185

```

(2) INFORMATION FOR SEQ ID NO: 3:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 174 amino acids

(B) TYPE: amino acid

(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 3:

```

186 Met Ser Glu Ser Tyr Arg Lys Leu Thr Thr Ser Ser Ile Ile Val Ala
188 1 5 10 15
189 Lys Ile Thr Phe Thr Gly Ala Met Leu Asp Gly Ser Ile Ala Leu Ala
191 20 25 30
194 Gly Gln Ala Ser Pro Ala Thr Asp Ser Glu Trp Asp Gln Val Ala Arg
195 35 40 45
197 Cys Glu Ser Gly Gly Asn Trp Ser Ile Asn Thr Gly Asn Gly Tyr Leu
198 50 55 60
200 Gly Gly Leu Gln Phe Ser Gln Gly Thr Trp Ala Ser His Gly Gly Gly
201 65 70 75 80
203 Glu Tyr Ala Pro Ser Ala Gln Leu Ala Thr Arg Glu Gln Gln Ile Ala
204 85 90 95
206 Val Ala Glu Arg Val Leu Ala Thr Gln Gly Ser Gly Ala Trp Pro Ala
207 100 105 110
209 Cys Gly His Gly Leu Ser Gly Pro Ser Leu Gln Glu Val Leu Pro Ala
210 115 120 125
212 Gly Met Gly Ala Pro Trp Ile Asn Gly Ala Pro Ala Pro Leu Ala Pro
213 130 135 140
215 Pro Pro Pro Ala Glu Pro Ala Pro Pro Gln Pro Pro Ala Asp Asn Phe

```

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```

216      145      150      155      160
218      Pro Pro Thr Pro Gly Asp Val Pro Ser Pro Leu Ala Arg Pro
219              165              170
221 (2) INFORMATION FOR SEQ ID NO: 4:
223      (i) SEQUENCE CHARACTERISTICS:
224              (A) LENGTH: 407 amino acids
225              (B) TYPE: amino acid
226              (D) TOPOLOGY: linear
230      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 4:
232      Met Ser Gly Arg His Arg Lys Pro Thr Thr Ser Asn Val Ser Val Ala
233      1              5              10              15
235      Lys Ile Ala Phe Thr Gly Ala Val Leu Gly Gly Gly Gly Ile Ala Met
236              20              25              30
238      Ala Ala Gln Ala Thr Ala Ala Thr Asp Gly Glu Trp Asp Gln Val Ala
239              35              40              45
241      Arg Cys Glu Ser Gly Gly Asn Trp Ser Ile Asn Thr Gly Asn Gly Tyr
242              50              55              60
244      Leu Gly Gly Leu Gln Phe Thr Gln Ser Thr Trp Ala Ala His Gly Gly
245      65              70              75              80
247      Gly Glu Phe Ala Pro Ser Ala Gln Leu Ala Ser Arg Glu Gln Gln Ile
248              85              90              95
250      Ala Val Gly Glu Arg Val Leu Ala Thr Gln Gly Arg Gly Ala Trp Pro
251              100             105             110
253      Val Cys Gly Arg Gly Leu Ser Asn Ala Thr Pro Arg Glu Val Leu Pro
254              115             120             125
256      Ala Ser Ala Ala Met Asp Ala Pro Leu Asp Ala Ala Val Asn Gly
257              130             135             140
259      Glu Pro Ala Pro Leu Ala Pro Pro Pro Ala Asp Pro Ala Pro Pro Val
260      145             150             155             160
262      Glu Leu Ala Ala Asn Asp Leu Pro Ala Pro Leu Gly Glu Pro Leu Pro
263              165             170             175
265      Ala Ala Pro Ala Asp Pro Ala Pro Pro Ala Asp Leu Ala Pro Pro Ala
266              180             185             190
268      Pro Ala Asp Val Ala Pro Pro Val Glu Leu Ala Val Asn Asp Leu Pro
269              195             200             205
271      Ala Pro Leu Gly Glu Pro Leu Pro Ala Ala Pro Ala Asp Pro Ala Pro
272              210             215             220
274      Pro Ala Asp Leu Ala Pro Pro Ala Pro Ala Asp Leu Ala Pro Pro Ala
275      225             230             235             240
277      Pro Ala Asp Leu Ala Pro Pro Ala Pro Ala Asp Leu Ala Pro Pro Val
278              245             250             255
280      Glu Leu Ala Val Asn Asp Leu Pro Ala Pro Leu Gly Glu Pro Leu Pro
281              260             265             270
283      Ala Ala Pro Ala Glu Leu Ala Pro Pro Ala Asp Leu Ala Pro Ala Ser
284              275             280             285
286      Ala Asp Leu Ala Pro Pro Ala Pro Ala Asp Leu Ala Pro Pro Ala Pro
287              290             295             300
289      Ala Glu Leu Ala Pro Pro Ala Pro Ala Asp Leu Ala Pro Pro Ala Ala
290      305             310             315             320

```

RAW SEQUENCE LISTING

DATE: 11/06/2002

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Input Set : A:\seqlistcorrected3.txt

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```

292 Val Asn Glu Gln Thr Ala Pro Gly Asp Gln Pro Ala Thr Ala Pro Gly
293                               325                               330                               335
295 Gly Pro Val Gly Leu Ala Thr Asp Leu Glu Leu Pro Glu Pro Asp Pro
296                               340                               345                               350
298 Gln Pro Ala Asp Ala Pro Pro Pro Gly Asp Val Thr Glu Ala Pro Ala
299                               355                               360                               365
301 Glu Thr Pro Gln Val Ser Asn Ile Ala Tyr Thr Lys Lys Leu Trp Gln
302                               370                               375                               380
304 Ala Ile Arg Ala Gln Asp Val Cys Gly Asn Asp Ala Leu Asp Ser Leu
305                               385                               390                               395                               400
307 Ala Gln Pro Tyr Val Ile Gly
308                               405

```

310 (2) INFORMATION FOR SEQ ID NO: 5:

312 (i) SEQUENCE CHARACTERISTICS:

313 (A) LENGTH: 155 amino acids

314 (B) TYPE: amino acid

315 (D) TOPOLOGY: linear

319 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 5:

```

321 Met Pro Gly Glu Met Leu Asp Val Arg Lys Leu Cys Lys Leu Phe Val
322 1 5 10 15
324 Lys Ser Ala Val Val Ser Gly Ile Val Thr Ala Ser Met Ala Leu Ser
325 20 25 30
327 Thr Ser Thr Gly Met Ala Asn Ala Val Pro Arg Glu Pro Asn Trp Asp
328 35 40 45
330 Ala Val Ala Gln Cys Glu Ser Gly Arg Asn Trp Arg Ala Asn Thr Gly
331 50 55 60
333 Asn Gly Phe Tyr Gly Gly Leu Gln Phe Lys Pro Thr Ile Trp Ala Arg
334 65 70 75 80
336 Tyr Gly Gly Val Gly Asn Pro Ala Gly Ala Ser Arg Glu Gln Gln Ile
337 85 90 95
339 Thr Val Ala Asn Arg Val Leu Ala Asp Gln Gly Leu Asp Ala Trp Pro
340 100 105 110
342 Lys Cys Gly Ala Ala Ser Asp Leu Pro Ile Thr Leu Trp Ser His Pro
343 115 120 125
345 Ala Gln Gly Val Lys Gln Ile Ile Asn Asp Ile Ile Gln Met Gly Asp
346 130 135 140
348 Thr Thr Leu Ala Ala Ile Ala Leu Asn Gly Leu
349 145 150 155

```

351 (2) INFORMATION FOR SEQ ID NO: 6:

353 (i) SEQUENCE CHARACTERISTICS:

354 (A) LENGTH: 176 amino acids

355 (B) TYPE: amino acid

356 (D) TOPOLOGY: linear

360 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 6:

```

362 Met His Pro Leu Pro Ala Asp His Gly Arg Ser Arg Cys Asn Arg His
363 1 5 10 15
365 Pro Ile Ser Pro Leu Ser Leu Ile Gly Asn Ile Ser Ala Thr Ser Gly
366 20 25 30
368 Asp Met Ser Ser Met Thr Arg Ile Ala Lys Pro Leu Ile Lys Ser Ala

```

RAW SEQUENCE LISTING ERROR SUMMARY
PATENT APPLICATION: US/09/445,289C

DATE: 11/06/2002
TIME: 14:44:49

Input Set : A:\seqlistcorrected3.txt
Output Set: N:\CRF4\11062002\I445289C.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:11; Xaa Pos.3,4
Seq#:38; Xaa Pos.13,18
Seq#:41; N Pos. 9,15,21

VERIFICATION SUMMARY

DATE: 11/06/2002

PATENT APPLICATION: US/09/445,289C

TIME: 14:44:49

Input Set : A:\seqlistcorrected3.txt

Output Set: N:\CRF4\11062002\I445289C.raw

L:26 M:220 C: Keyword misspelled or invalid format, [(A) APPLICATION NUMBER:]
L:27 M:220 C: Keyword misspelled or invalid format, [(B) FILING DATE:]
L:29 M:220 C: Keyword misspelled or invalid format, [(vii) PRIOR APPLICATION DATA:]
L:641 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:11 after pos.:0
L:1387 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:38 after pos.:0
L:1390 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:38 after pos.:16
L:1716 M:111 C: (47) String data converted to upper case,
M:111 Repeated in SeqNo=54